

What is claimed is:

1. A coating composition, comprising:  
an alkyd resin having a polydispersity of less than about 2, and being the reaction product of a polyester component and a substantially saturated fatty acid component; and  
5 a crosslinker, wherein the coating composition is substantially color stable.
2. The coating composition of claim 1, wherein the  $\Delta b$  color component of the coating composition after being rebaked is no greater than about +1 compared to the coating composition after cure but prior to rebake when evaluated using the Hunter Lab ColorQuest Colorimeter.
- 10 3. The coating composition of claim 1, wherein the  $\Delta b$  color component of the coating composition after being rebaked is no greater than about +0.5 compared to the coating composition after cure but prior to rebake when evaluated using the Hunter Lab ColorQuest Colorimeter.
- 15 4. The coating composition of claim 1, wherein the  $\Delta b$  color component of the coating composition after being rebaked is no greater than about +0.25 compared to the coating composition after cure but prior to rebake when evaluated using the Hunter Lab ColorQuest Colorimeter.
5. The coating composition of claim 1, wherein the coating composition has a volatile organic compound content of less than about 0.35 kilograms per liter of solids.
- 20 6. The coating composition of claim 1, wherein the coating composition has a volatile organic compound content of less than about 0.25 kilograms per liter of solids.
7. The coating composition of claim 1, wherein the alkyd resin comprises between about 40 and 80 weight percent of the coating composition.
- 25 8. The coating composition of claim 1, wherein the alkyd resin comprises between about 50 and 70 weight percent of the coating composition.

9. The coating composition of claim 1, wherein the alkyd resin has a number average molecular weight of between about 500 and 2,000.
10. The coating composition of claim 1, wherein the percent solids content of the coating composition is between about 60 and 80 weight percent.
- 5 11. The coating composition of claim 1, wherein the polyester component is a reaction product of a difunctional acid and a polyol.
12. The coating composition of claim 11, wherein the difunctional acid is selected from the group consisting of: phthalic anhydride, isophthalic acid, terephthalic acid, succinic acid, adipic acid, and mixtures thereof.
- 10 13. The coating composition of claim 11, wherein the difunctional acid is phthalic anhydride.
14. The coating composition of claim 11, wherein the polyol is selected from the group consisting of: neopentyl glycol, trimethylol propane, 1,4-butanediol, ethylene glycol, 1,4-cyclohexanediethanol, 1,3-propanediol, 1,6-hexanediol, trimethylolethane, and mixtures thereof.
- 15 15. The coating composition of claim 11, wherein the polyol comprises a blend of neopentyl glycol and trimethylol propane.
16. The coating composition of claim 1, wherein the fatty acid component is naturally occurring.
- 20 17. The coating composition of claim 1, wherein the fatty acid component is selected from the group consisting of: palmitic acid, lauric acid, stearic acid, capric acid, caprylic acid, myristic acid, and mixtures thereof.
18. The coating composition of claim 16, wherein the naturally occurring fatty acid comprises between 6 and 16 carbon atoms, and is saturated.

19. The coating composition of claim 1, wherein the alkyd resin has an acid number between about 2 and 10.
20. The coating composition of claim 1, wherein the alkyd resin has an acid number between about 4 and 6.

5       21. The coating composition of claim 1, wherein the coating composition comprises between about 10 and 40 weight percent crosslinker.

22. The coating composition of claim 1, wherein the crosslinker is selected from the group consisting of: melamine formaldehyde, urea formaldehyde, benzoguanamine formaldehyde, and glycoluril formaldehyde.

10      23. The coating composition of claim 1, wherein the crosslinker comprises melamine formaldehyde.

24. The coating composition of claim 1, further comprising a reactive diluent, wherein the reactive diluent comprises an epoxy material.

15      25. The coating composition of claim 1, further comprising a solvent selected from the group consisting of: mineral spirits, xylene, alcohols, ketones, esters, and glycol ethers.

26. The coating composition of claim 1, further comprising a wax selected from the group consisting of: carnauba, petrolatum, and polyethylene.

27. The coating composition of claim 1, further comprising a flow control agent selected from the group consisting of: silicone, fluorocarbons, and acrylic resins.

20      28. The coating composition of claim 1, further comprising a catalyst selected from the group consisting of: paratoluene sulfonic acid, and dodecylbenzene sulfonic acid.

29. The coating composition of claim 1, wherein the coating composition has an initial flexibility of at least about 7 when tested under the Erichsen Cup Fabrication Test.

30. The coating composition of claim 1, wherein the flexibility of the coating composition is at least about 5 after 2 minutes of dry heat at 200 °C using the Erichsen Cup Fabrication Test.

31. An alkyd resin composition, comprising:

5 a polyester component comprising a reaction product of a difunctional acid and a polyol; and

a fatty acid component having a polydispersity of less than about 2, wherein the fatty acid component is substantially saturated and naturally occurring, and wherein the alkyd resin has a number average molecular weight between about 500 and 2,000.

10 32. The alkyd resin of claim 31, wherein the difunctional acid is selected from the group consisting of: phthalic anhydride, isophthalic acid, terephthalic acid, succinic acid, adipic acid, and mixtures thereof.

33. The alkyd resin of claim 31, wherein the difunctional acid is phthalic anhydride.

34. The alkyd resin of claim 31, wherein the polyol is selected from the group consisting of: neopentyl glycol, trimethylol propane, 1,4-butanediol, ethylene glycol, 1,4-cyclohexanedimethanol, 1,3-propanediol, 1,6-hexanediol, trimethylolethane, and combinations thereof.

35. The alkyd resin of claim 31, wherein the polyol comprises a blend of neopentyl glycol and trimethylol propane.

20 36. The alkyd resin of claim 31, wherein the naturally occurring fatty acid is selected from the group consisting of: palmitic acid, lauric acid, stearic acid, capric acid, caprylic acid, and myristic acid.

37. The alkyd resin of claim 31, wherein the naturally occurring fatty acid comprises between 6 and 16 carbon atoms, and contains no unsaturation.

38. The alkyd resin of claim 31, wherein the acid number of the resin is between about 4 and 6.

39. The alkyd resin of claim 31, wherein the viscosity of the resin is between about 15 cm<sup>2</sup>/sec and 25 cm<sup>2</sup>/sec.

5 40. The alkyd resin of claim 31, wherein the solids content of the resin is between about 70 and 90 percent.

41. A coated substrate, comprising:  
a metal substrate coated with a coating composition comprising  
an alkyd resin, the alkyd resin being a reaction product of a polyester component and a  
10 substantially saturated fatty acid component, wherein the fatty acid component is naturally  
occurring, and wherein the alkyd resin has a number average molecular weight between about  
500 and 2,000, and a polydispersity of less than about 2; and a crosslinker, wherein the  
coating composition is substantially color stable.